

The opinion in support of the decision being entered today was *not* written for publication and is *not* binding precedent of the Board.

UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS
AND INTERFERENCES

Ex parte DOV HARTAL, YIGAL RAVEH, and ABRAHAM WOLF

Appeal 2006-1200
Application 09/449,093
Technology Center 1700

Decided: September 1, 2006

Before GARRIS, WALTZ, and JEFFREY T. SMITH, *Administrative Patent Judges*.

WALTZ, *Administrative Patent Judge*.

DECISION ON APPEAL

This is a decision on an appeal from the Primary Examiner's final rejection of claims 1 through 14, 23 through 38, and 41 through 45, which are the only claims pending in this application. We have jurisdiction pursuant to 35 U.S.C. § 134.

According to Appellants, the invention is directed to a concentrated lycopene product in which the lycopene is largely protected from oxidation by the

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chromoplast shells or capsules which surround the lycopene, although a small fraction of these are broken (Br. 2). Appellants submit that a key aspect of their invention is to liberate the chromoplast from the fruit (usually tomatoes) without causing substantial mechanical breakage or destruction of the chromoplast (Br. 5). Appellants state that their concentrated lycopene is a highly desirable red coloring material for food and other products (Br. 2). Representative independent claim 1 is reproduced below:

1. A coloring material in the red color range comprising:

chromoplast particles encapsulating crystalline lycopene as the color-imparting agent;

said chromoplast particles being particles separated from a fruit which contained them;

wherein the coloring material comprises from 500 to 300 ppm of said chromoplast particles encapsulating crystalline lycopene, and

wherein the coloring material has a soluble solids concentration below 5°Bx.

The Examiner has relied upon the following references as evidence of unpatentability:

Szabo	US 3,864,504	Feb. 04, 1975
Brumlick	US 4,181,743	Jan. 01, 1980
Bradley	US 4,670,281	Jun. 02, 1987
Horn	US 4,726,955	Feb. 23, 1988
Lang	US 5,229,160	Jul. 20, 1993
Graves	US 5,245,095	Sep. 14, 1993

Dale et al. (Dale), "Concentration of Tomato Products: Analysis of Energy Saving Process Alternatives," *J. Food Science*, Vol. 47, pp. 1853-58 (1982);

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Tonucci et al. (Tonucci), "Carotenoid Content of Thermally Processed Tomato-Based Food Products," *J. of Agricultural and Food Chemistry*, Vol. 43, No. 3, pp. 579-86 (1995).

The following rejections are before us for review in this appeal:

- (1) claims 1-14, 23-28, 44 and 45 stand rejected under 35 U.S.C. § 112, ¶1, as containing subject matter which was not described in the original specification in such a way as to reasonably convey that Appellants were in possession of the invention now claimed at the time of filing (Answer 4);
- (2) claims 1-14, 23-28 and 41-45 stand rejected under § 112, ¶1, as based on a non-enabling disclosure (Answer 5);
- (3) claim 5 stands rejected under § 112, ¶2, as indefinite (Answer 6);
- (4) claims 1-14, 23-25, 28 and 45 stand rejected under 35 U.S.C. § 102(b)/102(e) as anticipated by Graves (Answer 6);
- (5) claims 14 and 41-43 stand rejected under § 102(b) as anticipated by Tonucci (Answer 8);
- (6) claims 1-3 and 5-7 stand rejected under § 102(b) as anticipated by Brumlick (Answer 8);
- (7) claims 1-3, 5, 6, 13 and 14 stand rejected under § 102(b) as anticipated by Szabo (Answer 9);
- (8) claims 1-5 and 14 stand rejected under § 102(b) as anticipated by Bradley (Answer 9);
- (9) claims 1-5, 7, 13 and 14 stand rejected under § 102(e) as anticipated by Lang (Answer 10);
- (10) claims 26 and 27 stand rejected under § 103(a) as unpatentable over Graves in view of Horn (Answer 10);

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(11) claims 1-14, 24-28, and 45 stand rejected under § 103(a) as unpatentable over Tonucci in view of Dale (Answer 11); and

(12) claims 1-5, 7, 13, and 14 stand rejected under § 103(a) as unpatentable over Lang in view of Brumlick (Answer 11).

Based on the totality of the record, we AFFIRM the rejection of claims 1-7, 13, 14, 23-28 and 45 under 35 U.S.C. § 112, ¶1, for lack of written description, and also AFFIRM the rejection of all claims on appeal under § 112, ¶1, for lack of enabling disclosure, essentially for the reasons stated in the Answer as well as those reasons set forth below. We REVERSE the rejection of claims 8-12 under the first paragraph of § 112 for lack of written description, as well as the rejection of claim 5 under the second paragraph of § 112, and also REVERSE all prior art rejections (rejections numbered (4) through (12) above), essentially for the reasons stated in the Brief and Reply Brief, as well as those reasons noted below. Accordingly, the decision of the Examiner is AFFIRMED.

OPINION

A. The Rejection under § 112, ¶2

Since the claims have been rejected under the first and second paragraphs of section 112, we begin our analysis with the determination of whether the claims satisfy the requirements of the second paragraph. *See In re Angstadt*, 537 F.2d 498, 501, 190 USPQ 214, 217 (CCPA 1976), quoting *In re Moore*, 439 F.2d 1232, 1235, 169 USPQ 236, 238 (CCPA 1971). As stated in *Moore*, 439 F.2d at 1235, 169 USPQ at 238:

This first inquiry therefore is merely to determine whether the claims do, in fact, set out and circumscribe a particular area with a reasonable degree of precision and particularity. It is here where the definiteness of the language

employed must be analyzed - not in a vacuum, but always in light of the teachings of the prior art and of the particular application disclosure as it would be interpreted by one possessing the ordinary level of skill in the pertinent art.

The Examiner finds that claim 5 is indefinite because the scope of the phrase “high lycopene content tomato” is unknown and Appellants have not provided any basis in their specification for a “solid definition” of this phrase (Answer 6). Although the word “high” is a relative term, in view of the holding in *Moore*, we must consider this word in light of the application disclosure. Contrary to the Examiner’s finding, Appellants specifically disclose using as a starting material tomato varieties “especially rich in lycopene” with lycopene contents above that of normal tomatoes, i.e., above the range of 50-100 ppm (specification, p. 9, ll. 1-5; see the Br. 18). Additionally, Appellants teach that growing a “high lycopene-content tomato variety” with 200 ppm of lycopene or higher is “within the skill of the routineer” (specification, p. 10, ll. 1-14). Therefore we determine that the scope of the claimed phrase “high lycopene-content tomato variety” is adequately defined in the specification disclosure, as well as known in the art (see also the Hartal Declaration dated June 10, 2003, page 4, ¶7). Accordingly, we reverse the Examiner’s rejection of claim 5 under the second paragraph of section 112.

B. The Rejection under § 112, ¶1, Written Description

The Examiner finds that Appellants added the claimed phrase “comprises from 500-3,000 ppm of said chromoplast particles encapsulating crystalline lycopene” and there is no basis in the original disclosure for this phrase (Answer 5). Appellants argue that the specification at page 9, lines 1-2, provides basis for the claimed phrase (Br. 14).

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As correctly argued by the Examiner (Answer 5: 12-13), the only portion of the specification relating to a range of lycopene content is at page 9, lines 1-2, but this disclosure describes the concentration range of lycopene, *not* the concentration range of “chromoplast particles encapsulating crystalline lycopene” as recited in claim 1 on appeal. As also correctly argued by the Examiner (Answer 12-13), there is no evidence that the amount of chromoplast particles correspond to the amount of lycopene.

An *ipsis verbis* disclosure is not necessary to satisfy the written description requirement of section 112. Instead, the disclosure need only reasonably convey to persons skilled in the art that the inventor had possession of the subject matter in question. *See In re Edwards*, 568 F.2d 1349, 1351-52, 196 USPQ 465, 467 (CCPA 1978). The Examiner, however, has met the initial burden of proof by establishing that Appellants are claiming embodiments of the invention that are completely outside the scope of the specification. *See In re Alton*, 76 F.3d 1168, 1175, 37 USPQ2d 1578, 1583 (Fed. Cir. 1996). Appellants’ arguments have not overcome this *prima facie* case.

As separately argued by Appellants (Br. 14), claim 8, and claims dependent therefrom, do not recite the same phrase as found in claim 1 on appeal but instead conform to the disclosure in the original specification at page 9, lines 1-2, regarding the total amount of lycopene in the coloring material. Since we determine that claim 8 does not require a concentration of chromoplasts particles

encapsulating lycopene but instead conforms to the specification disclosure, we cannot sustain the Examiner's rejection of claim 8 and claims 9-12 dependent thereon.¹

Therefore we affirm the Examiner's rejection of claims 1-7, 13, 14, 23-28 and 45 but reverse the rejection of claims 8-12 under section 112, paragraph one, for lack of written description.

C. The Rejection under § 112, ¶1, for Lack of Enablement

The Examiner finds that the specification disclosure is not enabling, since the key aspect of the invention is to liberate the chromoplast from the fruit without causing substantial mechanical breakage or destruction of the chromoplast but Appellants have not disclosed how this key aspect is accomplished (Answer 5-6 and 13-14). We agree.

Appellants argue that the prior art uses "rigorous extraction" of the chromoplasts and thus the present invention is carried out *without* such rigorous extraction, thus preventing substantial destruction of the chromoplasts (Br. 15). Appellants argue that their centrifugation step is known to be a "gentle separation" process, as confirmed by the Hartal Declaration (dated June 10, 2003, paragraph 2; see the Br. 15). Appellants submit that this separation process is shown in Examples 1-3 in the specification, and at most it would involve only routine experimentation to practice Appellants' invention (Br. 15-16).

¹We note that claims 41, 42 and 43 are *not* included in the rejection under paragraph one for lack of written description although independent claim 41 contains the same phrase as found in claim 1 on appeal. In the event of further or continuing prosecution, the Examiner should review these claims to determine whether these claims fulfill the written description requirement of section 112.

Appellants' arguments are not persuasive. Appellants disclose that "[t]he intense red color of lycopene is absolutely dependent on its intact crystalline structure; hence it is likely that keeping the lycopene associated with the chromoplasts, either intact or partially broken, is instrumental in maintaining the red color" (specification, p. 7, ll. 5-8). As correctly noted by the Examiner (Answer 13), the original disclosure fails to teach how to accomplish this objective, by failing to disclose or teach any process conditions, instead only disclosing conventional preliminary steps followed with separation by "centrifugation" (Specification, p. 11, l. 8, part (d)). Contrary to Appellants' argument, the Examples on pages 16-19 of the specification merely disclose "centrifugation" without any other parameters. As also correctly stated by the Examiner (Answer 6), all other process steps disclosed in Appellants' specification are "not essentially different from those conventionally carried out in the tomato processing industry" (p. 11, last full paragraph). As stated in the Hartal Declaration (p. 2), gentle over-all treatment is "essential" and Appellants employ "mild, i.e. gentle conditions that assure minimal damage to the protective chromoplasts." Declarant also states that "[c]entrifugation is a gentle process" (*id.*). However, as noted by Appellants (Br. 31) and emphasized by the cited reference to Bradley, "high speed centrifugal separation, unavoidably degrades the cellular structure of the tomato macerate" (Bradley, col. 5, ll. 44-48). If the experimentation needed to separate fractions of tomato macerate by centrifugation without cellular structure degradation was only "routine," Bradley would not have abandoned centrifugation in favor of a gravity screening process (see col. 5, ll. 44-64). Therefore it would appear essential to Appellants' disclosure to disclose or

teach the type of centrifuge used, as well as the operating conditions necessary to obtain the specific concentration of chromoplast encapsulated lycopene product as claimed by Appellants. We determine that Appellants have not provided any teaching, guidance, or examples in the original disclosure useful in determining the omitted process conditions. Furthermore, as shown by Bradley, the state of the prior art and the skill of those in the art do not overcome this deficiency in appellants' disclosure. *See In re Wands*, 858 F.2d 731, 735, 8 USPQ2d 1400, 1404 (Fed. Cir. 1988).

Additionally, we note that Appellants teach subsequent processing of the color concentrate including size-reducing in a colloid mill or microcutter (Specification, p. 12, second full paragraph; p. 13, Routes 1 and 2; and p. 16, Example 1) but fail to teach how such comminution can be accomplished without destruction of the chromoplast structure. We note that the Hartal Declaration (p. 2, ¶1) teaches the avoidance of fine grinding to avoid chromoplast destruction.

For the foregoing reasons as well as those reasons stated in the Answer, we determine that Appellants' disclosure has omitted a critical feature and more than routine experimentation would have been necessary to practice the invention as now claimed. *See In re Mayhew*, 527 F.2d 1229, 1233, 188 USPQ 356, 358 (CCPA 1976). Therefore we affirm the Examiner's rejection of claims 1-14, 23-28 and 41-45 under § 112, ¶1, for lack of enablement.

D. The Rejections based on Prior Art

We cannot sustain any of the rejections on appeal based on prior art essentially for the reasons expressed by Appellants in the Brief and Reply Brief. We add the following reasons for completeness.

For most of the rejections, the Examiner concludes that the claimed properties are “inherent” in the prior art products (e.g., see the Answer 7-8). However, to establish such “inherency,” the Examiner must show a sound basis for believing that the products of Appellants and the prior art are the same. *See In re Spada*, 911 F.2d 705, 708, 15 USPQ2d 1655, 1658 (Fed. Cir. 1990). We determine that the Examiner has failed to establish such a sound basis.

Claim 1 on appeal requires that the coloring material contain from 500 to 3000 ppm of chromoplast particles encapsulating crystalline lycopene, as well as having a soluble solids concentration below 5° Bx. The Examiner has not established that Graves, directed to a process that disrupts the cell structure and heats the fraction to at least 60° C. (col. 3, ll. 11-19, and col. 5, ll. 7-9), would inherently have the properties required by claim 1 on appeal. Similarly, the Examiner has failed to establish that the thermally processed foods taught by Tonucci have values within the ranges recited in claim 1 on appeal. The amount of lycopene in tomato juice is far lower than that recited in claim 1 (about 107 ppm; see Table 2 on p. 583) while the soluble solids concentration of tomato paste (with lycopene concentrations of about 554 ppm; see Table 3 on p. 584) is far too high (about 30° Bx; see the Hartal Declaration, p. 3, ¶6). Furthermore, all the remaining references applied by the Examiner have some deficiency, such as high thermal treatment (Brumlick, Bradley, and Lang) or cell structure degradation due

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to centrifugation (Brumlick and Szabo), and the Examiner has failed to establish the reasonable belief that any applied reference discloses or suggests the same process steps as claimed by Appellants or the claimed combination of properties with regard to the amount of lycopene and the concentration of soluble solids.

For the foregoing reasons and those stated in the Brief and Reply Brief, we determine that the Examiner has failed to establish a *prima facie* case of unpatentability in view of the prior art references. Therefore we reverse all rejections based on prior art in this appeal.

E. Summary

The rejection of claims 1-7, 13, 14, 23-28 and 45 under 35 U.S.C. § 112, ¶1, for failing to fulfill the written description requirement is affirmed. The rejection of claims 1-14, 23-28 and 41-45 under 35 U.S.C. § 112, ¶1, for lack of enablement, is affirmed.

The rejection of claim 5 under 35 U.S.C. § 112, ¶2, is reversed. The rejection of claims 8-12 under 35 U.S.C. § 112, ¶1, for lack of written description is reversed. The following rejections are also reversed:

- (1) claims 1-14, 23-25, 28 and 45 under § 102(b)/102(e) over Graves;
- (2) claims 14 and 41-43 under § 102(b) over Tonucci;
- (3) claims 1-3 and 5-7 under § 102(b) over Brumlick;
- (4) claims 1-3, 5, 6, 13 and 14 under § 102(b) over Szabo;
- (5) claims 1-5 and 14 under § 102(b) over Bradley;
- (6) claims 1-5, 7, 13 and 14 under § 102(e) over Lang;
- (7) claims 26 and 27 under § 103(a) over Graves in view of Horn;

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(8) claims 1-14, 24-28 and 45 under § 103(a) over Tonucci in view of Dale;
and

(9) claims 1-5, 7, 13 and 14 under § 103(a) over Lang in view of Brumlick.

The decision of the Examiner is thus affirmed.

No time period for taking any subsequent action in connection with this appeal may be extended under 37 C.F.R. § 1.136(a)(1)(iv)(2004).

AFFIRMED

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